6.3 4-03 pc - Stored Program Digital Switching Equipment added or changed since last symposium

Manufacturer	Base	Accepted System Release(5)	Acceptance Classification(1)	RST(s)
Lucent Technologies	5ESS-2000(6)	5E16.2	A	EAIU BZ-RS/EAIU RSM ORM TRM
Nortel Networks, Inc.	DMS-10(2)	503.10	A	RLCM (OPAC) RSC-S Star Remote Hub
	DMS-100(3)	LEC00015	A	RLCM (OPAC) RSC-S RSC Star Remote Hub
Redcom Lab., Inc.	MDX	17.0	A	MDX-R
	MDX-I(7)	5.0	A	MDX-IR
Siemens Information and Communication Networks	DCO(4)	23.0 O-N-E UP	A	RLS-450 RLS-1080 RLS-4000
	EWSD(8)	19.0	A	RCU RCU-160C RCU-800C Smart Remote
Taqua, Inc.	OCX	1.6	A	OCX

Notes:

(1)Acceptance Classification: C-Conditionally Accepted, A-Accepted.

(2)The DMS-10 listing includes the one and two bay version and its application as an HSO, SSO or LCC.

(3)The DMS-100 listing includes its application as a DMS-200 tandem office and the smaller version of the SuperNode configuration, the DMS SuperNode SE.

(4)DCO listing includes the DCO-SE one and two bay configurations and DCO RNS.

(5) The listed software/firmware system release is the most recent system release that was reviewed by RUS and found to be fully compliant with all requirements of 7 CFR 1755.522, RUS General Specification for Digital, Stored Program Controlled Central Office Equipment (Form 522). Other system releases may also be acceptable. For information on specific releases, please contact the Chairman, Technical Standards Committee "A" (Telecommunications), Rural Utilities Service, Stop 1598, 1400 Independence Avenue, SW., Washington, D.C. 20250-1598.

(6)The 5ESS 2000 digital exchange listing includes the compact digital exchange 5ESS 2000 (CDX) and the very compact digital exchange 5ESS 2000 (VCDX) in host and remote switching terminal configurations (DRM). When a VCDX is upgraded to a CDX or full sized 5ESS 2000, it can host the listed RSTs. Unless it is upgraded it can only host the EAIU and BZ-RS/EAIU. Emergency call processing is only offered with the BZ-RS unit.

(7)The MDX-I listing is for a minimum system configuration of four shelves, each containing no more than 100 lines or 25 percent of the total equipped lines, whichever is less.

(8)The EWSD listing includes the EWSD Small Exchange (EWSD-SX) and the Line Trunk Group O (LTGO).

Acceptance for Lucent Technologies 5ESS-2000 System Release 5E16.2

Brazil Remote Survivability (BZ-RS)

Acceptance for Lucent 5ESS-2000 Release 5E16.2

Software feature enhancements:

Enhancements to the Forwarded Call-Call Screening (FCCS) feature modifies the feature to function like an answering machine.

Acceptance for Lucent 5ESS-2000 Release 5E16.2

Software feature enhancements:

Communications Assistance for Law Enforcement Act (CALEA) feature.

Connections to the Law Enforcement Agency (LEA) can to be established using switched virtual circuits, or dial up POTS and ISDN lines.

Acceptance for Lucent 5ESS-2000 Brazil Remote Survivability

BZ-RS adds an emergency call processing capability to a non-RST EAIU.

Resides in a Miscellaneous Cabinet at the remote site.

Takes over processing local and 911 calls for the EAIU when connection with the Host Switch has been lost.

Approval-to-Bid for Nortel DMS-100 System Release LEC00017

New features include:

Flow-through provisioning for Universal Edge 9000 DMS based digital subscriber line (DSL) data services

Additional Advanced Intelligent Network (AIN) upgrades. The AIN upgrades bring the DMS-100 into compliance with Telcordia specifications.

Approval-to-Bid for Redcom MDX Version 18.0

This release provides Local Number Portability and an Expanded Digital Announcer (EDA). The EDA provides announcer capability for CLASS features.

Approval-to-Bid for Redcom MDX-I Version 6.0

Communications Assistance for Law Enforcement Act (CALEA) and Signaling System 7 (SS7)

Eight line Basic Rate S-Interface circuit board and an Expanded Digital Announcer (XDA).

The S-Interface refers to the reference point in the Integrated Services Digital Network (ISDN) between the network termination and ISDN terminal equipment.

Acceptance for Siemens EWSD Release 19.0

New software features:

Telemarketing - Do Not Disturb

Account Suppression with 911.

Acceptance for Siemens EWSD Release 19.0

Software feature enhancements:

Operations, administration and maintenance software

EWSD Communications Assistance for Law Enforcement Act (CALEA) feature.

Department of Justice's "Phase II Punch List."

Acceptance for Siemens EWSD Release 19.0

Does not include:

Line Trunk Group O (LTGO)

One-fourth the space of the LTGK

Less power and better performance

Planned for Federated Telephone Cooperative, Chokio, Minnesota (MN-562) and Cameron Telephone, Cameron, LA

Acceptance for Siemens EWSD Small Exchange

EWSD-SX:

Repackaging of the EWSD

Up to 10,000 lines and 1,440 trunks

Only the racks have been changed.

Acceptance for Siemens EWSD Small Exchange

EWSD-SX:

Same:

- architecture, circuit cards
- software
- features
- remote switching terminals

Host the DCO O-N-E UP

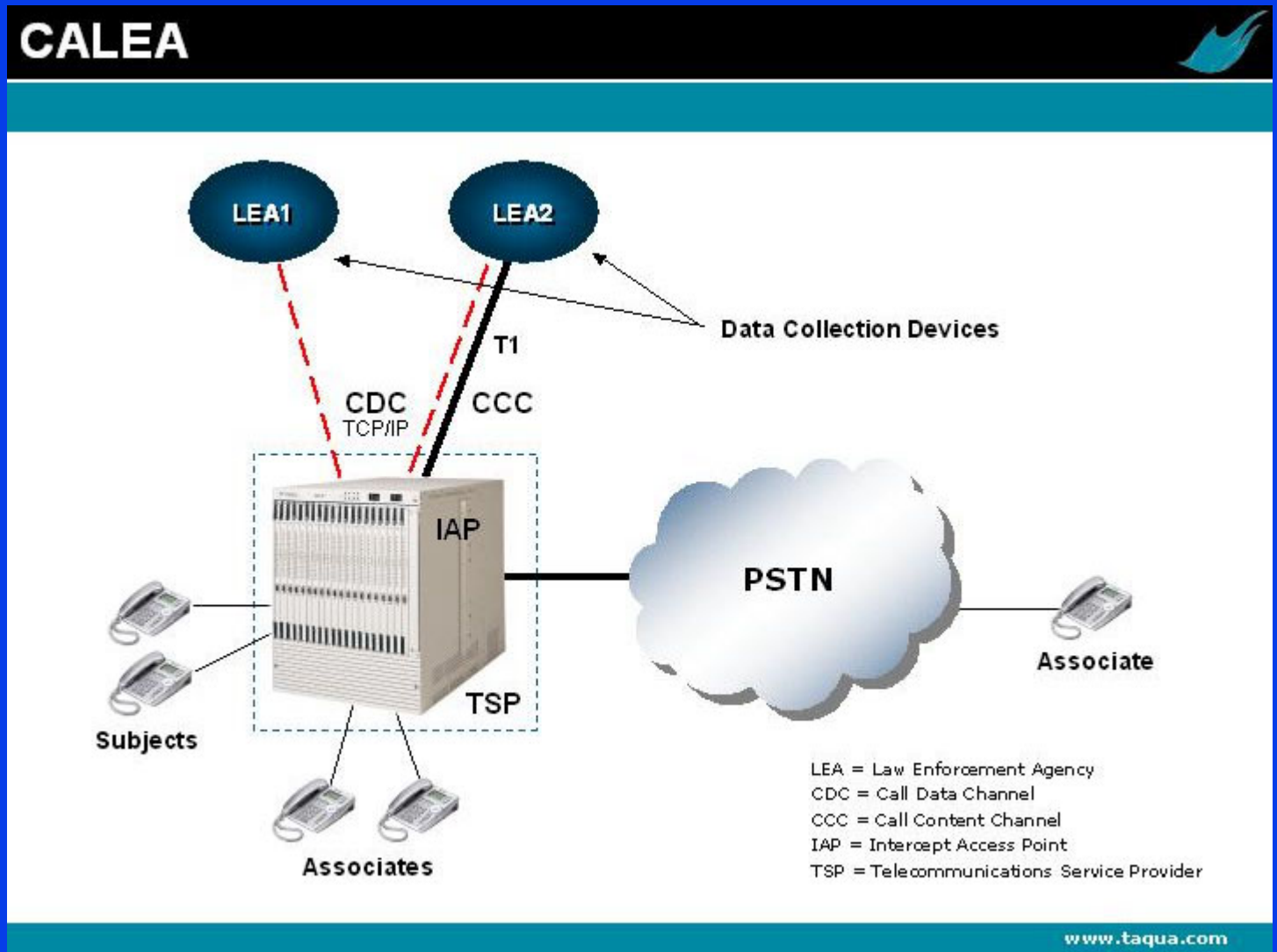
Upgradeable to a standard EWSD.

Acceptance for Siemens EWSD Small Exchange

EWSD-SX:

Racks have been reconfigured to allow an 800 line office with 288 trunks to fit in six equipment racks instead of the nine racks required by an EWSD.

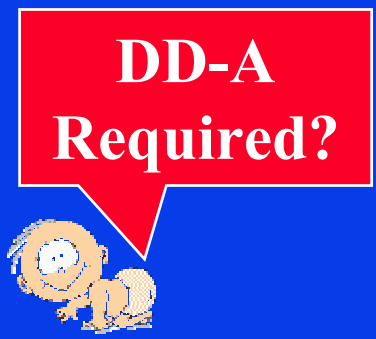
Taqua listed at Release 2.3.0



Category Changes

ae - Access Equipment: DLCs, DSL, FTTH, WLL

te - Transport Equipment: T1, SONET Microwave Systems



New! wn – Wireless Networks: personal communications networks, digital cellular networks, and related products using GSM, CDMA or TDMA technology. New!

6.1 4-03 ae - Access Equipment added since last symposium

Manufacturer	Product	Copper	Fiber	Wireless
ADTRAN	Total Access(7)	Y	Y	Y
Calix	Calix C7	Y	Y	N
Fujitsu	FLASHWAVE 4100	N	Y	N
GoDigital	XCel-4a	Y	N	N
	XCel-8	Y	N	N
	XCel-12	Y	N	N
Innowave	MultiGain Wireless	N	N	Y

(7)Includes the Total Access (TA) 3000, TA 1500, TA 1000, TA 850, TA 750, TA 4303, TA MX2800/MX2810, OPTI-3 and TRACER.

6.1 4-03 ae - Access Equipment added since last symposium

Manufacturer	Product	Copper	Fiber	Wireless
Net To Net Technologies	IP DSLAM 4000(8)	Y	N	N
	IP DSLAM 12000(8)	Y	N	N
	ADSL MiniDSLAM	Y	N	N
	T1 Network Extender 1500	Y	N	N
Occam	BLC-1100	Y	Y	N
	BLC-1200 System	Y	Y	N
Optical Solutions	FiberPath 400	N	Y	N

(8)Includes Multiplexer Uplink Module, ADSL Access Multiplexer Module, SDSL Inverse Multiplexer Module, and T1 Access Multiplexer 1500.

ae - Access Equipment

Manufacturer	Product	Copper	Fiber	Wireless
Siemens Information and Communication Networks				
	Accession Integrated Access Platform	Y	Y	N
VINA Technologies	Integrator 300	Y	N	N
Zhone Technologies	MALC(9)	Y	Y	N
	AccessNode (6)	Y	Y	N

(6)Includes the AccessNode Express and UE9000.
(9)Due to a lack of sufficient field experience, the ADSL+POTS+splitter card is not included in the MALC listing.

Adtran

Total Access (TA) 3000

Supports HDSL, T1/FT1, ISDN, DSL and optical delivery of four T1 services (Quad Fiber Optic)

Up to 224 two-wire loops to customer equipment

Provides built-in Hi-Cap protection for HDSL, T1 and optical interfaces.

Adtran

Total Access 1500

One to four T1 uplinks
Supports up to 96 POTS lines, 48 special services lines or 24 xDSL lines.

Total Access 1000 -
outside plant access terminal

Pair gain system delivers 24 POTS and/or ISDN lines over a 4-wire HDSL channel and uses span powering.

Adtran

TA 750 is an integrated-access device (IAD)
Terminates a single T1 or 24 access lines.
Supports analog voice, Fractional T1, ISDN and DDS services
Deploys at customer premise locations or remote terminals.

TA 850 IAD similar to TA 750
Integrates built-in IP router, management
TDM to ATM migration path.

Adtran

TA 4303 supports GR-303
Provides eight to 128 DSX-1 interfaces
up to four DS3 and STS-1 interfaces

TA MX2800 and MX2810 multiplexers
Consolidate T1 and E1 signals into a T3
Support 28 T1s or 21 E1s
Combined and deployed on a single DS3

OPTI-3 OC-3 multiplexer
Delivers three DS3s from a single OC-3 signal.

Adtran

TRACER

Spread spectrum radio system

Operates in the 2.4 and 5.8 GHz frequency unlicensed bands.

Provides two T1 links

Distances up to 30 miles - point-to-point configuration

Calix Networks C7

C7 provides TDM and ATM services.

Plug-in cards can be deployed in any slot to provide services ranging from 64 kbps to 10 Gbps

Single shelf 480 POTS or DSL circuits
240 DS1s or DS3s
82 OC-3/12
22 OC-48s.

Five interconnected Calix C7 shelves (7 foot rack) - Single network element up to 2,400 copper or fiber connections.

Fujitsu FLASHWAVE 4100
Two System Configurations

Eight interface slot shelf

Capacity up to:
42 DS1s
6 DS3s
8 OC-3s
2 OC-12s
24 10/100 Base-T Ethernet ports

Fourteen interface slot shelf

Capacity up to:
84 DS1s
12 DS3s
14 OC-3s
2 OC-12s
48 10/100 Base-T Ethernet ports

GoDigital Networks
The Xcel 4a

Extends 4 ADSL services over a copper pair at distances up to 100 kft.

Innowave
MultiGain Wireless system
(MGW)

Unlicensed 2.4 GHz ISM band

Spread spectrum techniques with CDMA technology.

Point-to-multipoint configuration

Components:

- Radio Port Control Units (RPCUs)
- Radio Ports
- Subscriber Fixed Access Units (FAUs).

Innowave
MultiGain Wireless system
(MGW)

Radio Port Control Units (RPCUs)

System controller
Interface to the local exchange

Supports up to 1024 subscribers

Supports up to eighteen Radio Ports

Each Radio Port carries up to eight simultaneous voice calls.

Innowave
MultiGain Wireless system
(MGW)

Radio Ports - remotely located from Control Unit
- self-contained units
- remotely controlled
- two types:

Radio Port Units (RPUs) - require external antennas

Radio Port Couplers (RPCs) -
internal directional antenna
or external antennas

Innowave
MultiGain Wireless system
(MGW)

Radio Ports both types

Connected to an RPCU by:

Two unloaded twisted copper pairs

or

Innowave
MultiGain Wireless system
(MGW)

both types of Radio Ports connected to an RPCU by:

MGW coverage extender equipment

Used for longer ranges, extending past 15 miles

Connects the remote RPU/RPC units to the RPCU via:

- E1 or T1 lines
- microwave links
- fiber optic cables

Provides the feeder power to the RPU/RPC.

Innowave
MultiGain Wireless system
(MGW)

Subscriber Fixed Access Units (FAUs)

= Subscriber radio frequency terminal

Supports up to four POTS lines or one ISDN line

Net to Net Technologies

IP DSLAM 12000 - 12 access modules
- up to 144 DSL or T1/E1 lines

IP DSLAM 4000 - 4 access modules
- up to 48 DSL or T1/E1 lines

ADSL MiniDSLAM - 12 ADSL ports
- full rate or G.lite ADSL
- at distances up to 18 kft

Net to Net Technologies

IP DSLAM 12000 - 12 access modules
- up to 144 DSL or T1/E1 lines

IP DSLAM 4000 - 4 access modules
- up to 48 DSL or T1/E1 lines

ADSL MiniDSLAM - 12 ADSL ports
- full rate or G.lite ADSL
- at distances up to 18 kft

Net to Net Technologies

IP DSLAM 12000

IP DSLAM 4000

Net to Net Technologies

DSLAMs - at least 1 slot for a Multiplexer Uplink Module
T1/E1 and 10/100 Ethernet interface slots

IP DSLAM 4000 - 4 access modules
- up to 48 DSL or T1/E1 lines

ADSL MiniDSLAM - 12 ADSL ports
- full rate or G.lite ADSL
- at distances up to 18 kft

Occam BLC 1100

24 subscriber ports providing both:

Plain Old Telephone Service

Asymmetric Digital Subscriber Line (ADSL)

G.Lite only

"T1" or fiber optic Ethernet transport is used to carry both the voice and data traffic to a Gigabit Ethernet Switch. From there the voice traffic is routed to the Public Switched Telephone Network and the data traffic to the Internet.

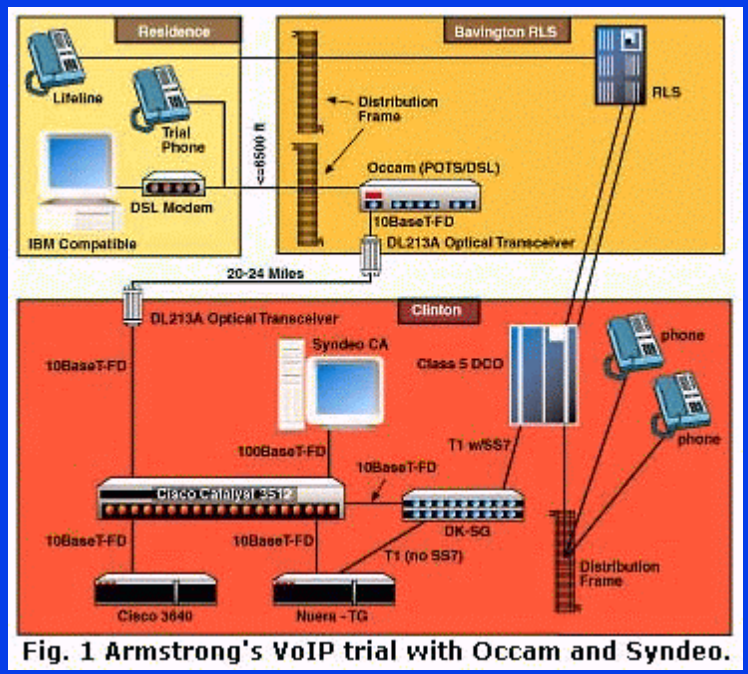


Fig. 1 Armstrong's VoIP trial with Occam and Syndeo.

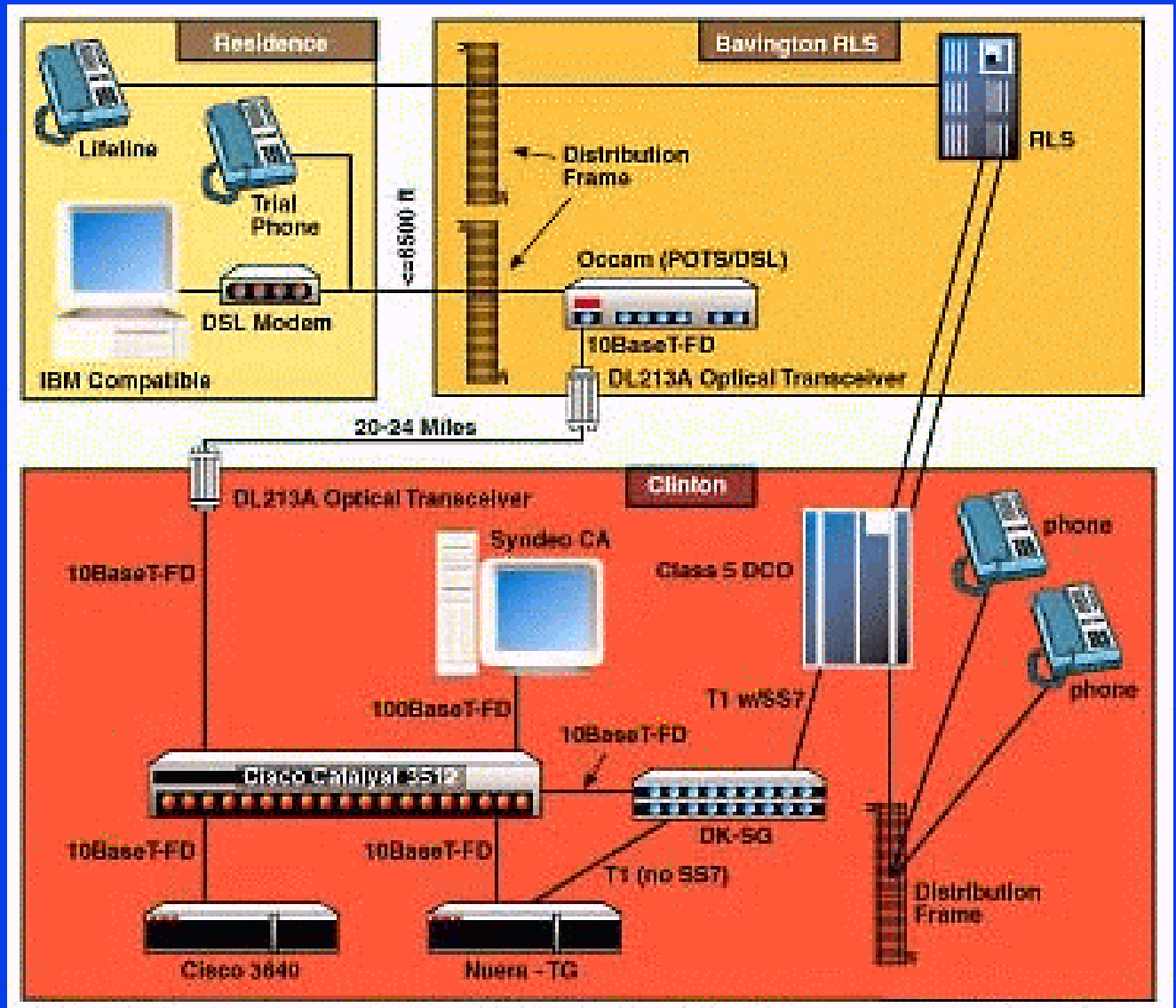


Fig. 1 Armstrong's VoIP trial with Occam and Syndeo.

Occam BLC 1200 System

BLC 1200 - both system name
and base full feature model

24 subscriber ports providing both:

Plain Old Telephone Service

Asymmetric Digital Subscriber Line (ADSL)

Both Full Rate and G.Lite

Uplinks: T1 and Fiber

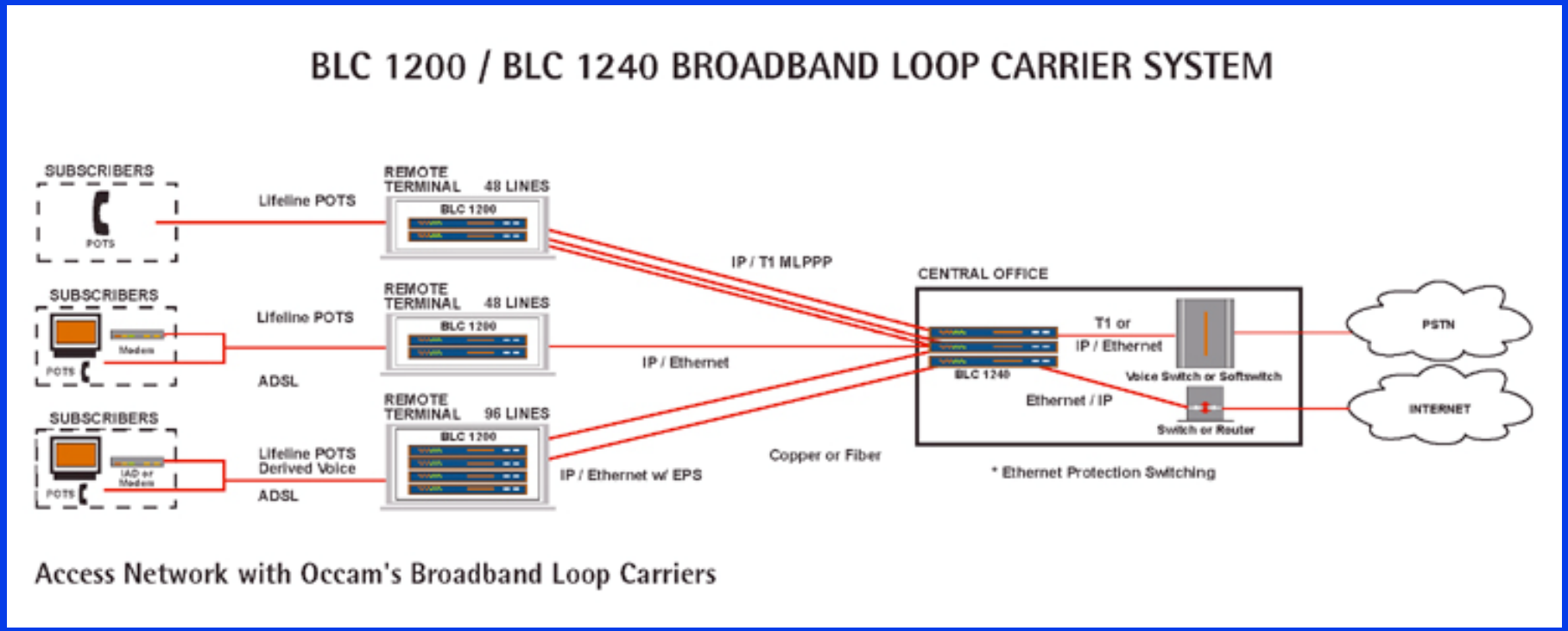
Occam BLC 1200 System

BLC 1240 - Central Office Terminal
GR 303

BLC 1210 - POTSoE only to feed softswitches in native mode

BLC 1220 - T1 uplink only
Less software
Less costly than BLC 1200

Occam BLC 1200 System



Optical Solutions - FiberPath 400

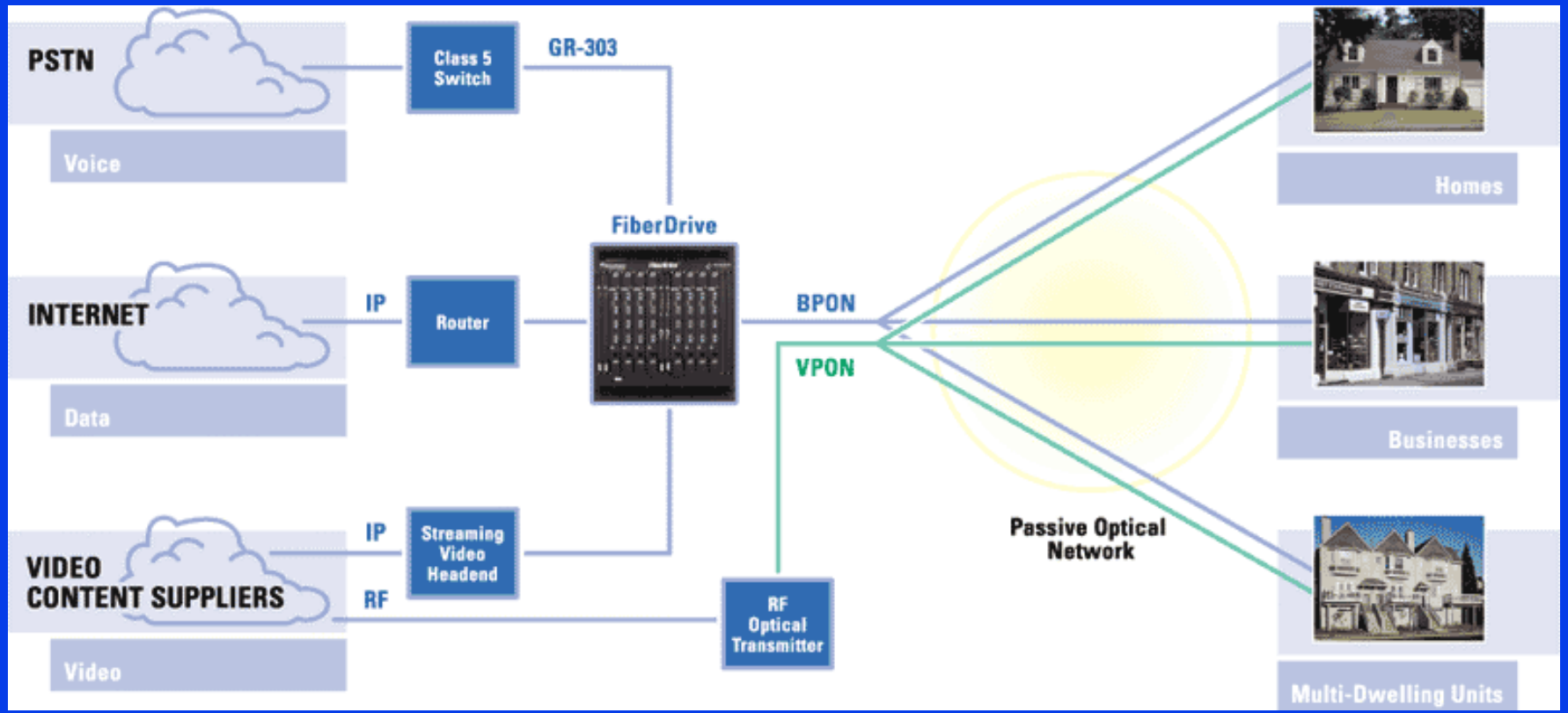
Fiber-to-the-Home (FTTH) - voice, data and video

Components:

- **FiberDrive - central office terminal**
- **PON (passive optical network)**
- **Fiberpoint unit - subscriber end**

Optical Solutions - FiberPath 400

Fiber-to-the-Home (FTTH) - voice, data and video



Optical Solutions - FiberPath 400

Fiber-to-the-Home (FTTH) - voice, data and video

FiberDrive supports:

GR-303 interface

Up to 1,152 subscribers

Up to 36 PONs x up to 32 FiberPoint subscriber units.

Optical Solutions - FiberPath 400

Fiber-to-the-Home (FTTH) - voice, data and video

PON consists of two fibers:

- **One for the BPON (broadband PON)**
- **One for the VPON (video PON)**

Optical Solutions - FiberPath 400

Fiber-to-the-Home (FTTH) - voice, data and video

	Distances (miles)	Split
Base System	0 to 5	32-way
Extended Range BPON	5 to 10	16-way
Extended Range BPON	10 to 15	8-way
Remotely install FiberDrive	>15	

Optical Solutions - FiberPath 400

Fiber-to-the-Home (FTTH) - voice, data and video

Fiberpoint unit - subscriber end

Residential unit

- **4 POTS lines**
- **4 Ethernet ports**
- **4 analog/digital video ports**

Siemens
Accession Integrated Access Platform

Digital Subscriber Loop Access Multiplexer (DSLAM)

Next Generation Digital Loop Carrier (NGDLC)

Gateway

Siemens
Accession Integrated Access Platform

redundant busses

Asynchronous Transfer Mode

Time Division Multiplexer

Siemens
Accession Integrated Access Platform

384 POTS lines in an all NGDLC mode

or

448 ADSL in an all DSL mode

Siemens
Accession Integrated Access Platform

Asymmetrical Digital Subscriber Line, at Full and G. Lite rates

High Level Data Control Number 2

Symmetrical Digital Subscriber Line at Standard and G. Lite rates

Voice over DSL

Vina Technologies - Integrator 300

Integrated Access Device (IAD)

24 channels over a T1

Functions:

- **Channel bank**
- **IP router**
- **CSU/DSU**
- **T1 multiplexer**

Vina Technologies - Integrator 300

Integrated Access Device (IAD)

Remote and local management

- **SNMP**
- **Telnet**

Supports Ethernet 10 Base T port

Zhone Technologies, Inc.
Multi-Access Loop Concentrator (MALC)

Combination Digital Line Concentrator and Digital Subscriber Loop Access Multiplexer (DSLAM).

Zhone Technologies, Inc.
Multi-Access Loop Concentrator (MALC)

Combination Digital Line Concentrator and Digital Subscriber Loop Access Multiplexer (DSLAM).

24 port line cards: ADSL only, POTS only, ADSL plus POTS plus splitter and G.SHDSL (G.991.2 standard)

Uplink cards: Eight port T1 – IMA, two port DS-3 and two port OC-3 (Single Mode Fiber)

The MALC supports automatic protection switching when two OC-3 cards are installed in a system.

Zhone Technologies, Inc.
Multi-Access Loop Concentrator (MALC)

MALC chassis contains frame, control, supervisory, metallic test access, ring voltage and TDM buses.

TDM voice circuits of the POTS cards are connected via the TDM bus to the uplink cards.

The uplink cards provide ATM Adaptation Layer 2 (AAL2) termination for voice circuits.

An ATM switch and a voice gateway are necessary to provide a MALC's voice connection to a local exchange switch.

Zhone Technologies, Inc.
Multi-Access Loop Concentrator (MALC)

Rack-mounted - vertical card slots:

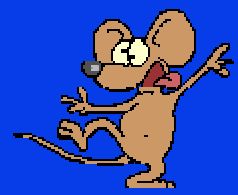
POTS+ADSL w/Redundant OC-3

	Width	Height	Slots	Lines	
MALC 719	19	7	17	13	312
MALC 723	23	7	21	17	408

Rack-mounted - horizontal card slots:

MALC 319	19	3	10	6	144

Ray's Alternative Management Track

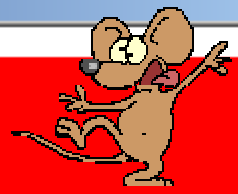


Want to downsize without severance pay?

Install a Computer Emergency Notification System

USDA Computer Emergency Notification System

EMERGENCY



This is a TEST.

In the event of an actual emergency, this message would tell you the following:

What kind of emergency
Where the emergency is occurring (building, floor and wing)
What actions you should take

This message should have been preceded by a siren sound. If it was not or if you are experiencing other problems with CENS, please contact your agency computer support group.

If the siren sound has not induced a heart attack,

close this message and return to work, click with your mouse on the X in the upper right or pres ALT-F4.

The shock caused by the siren sound will eventually dissipate.

Thank you for your participation in this important test!

6.2 4-03 te - Transport Equipment added since last symposium

Manufacturer	Product	Bit Rate	RF Band
Advanced Fibre Communications-			
	Telliant 5000(5)	OC-3	
Ciena	MultiWave CoreStream	OC-12/48/192	
Cisco Systems	Cisco 15454	OC-3/12/48	
Kestrel	TalonMX	OC-3/12	
Lucent Technologies	Metropolis DMX	OC-3/12/48	
	WaveStar TDM 2.5G/10G	OC-3/12/48/192	
Marconi	ASX 200 BX	T1/DS1/OC-3/12	
	ASX 1000	T1/DS1/OC-3/12	
	ASX 1200	T1/DS1/OC-3/12/48	

Notes: (5)The Telliant 5000 can provide xDSL lines.

6.2 4-03 te - Transport Equipment added since last symposium

Manufacturer	Product	Bit Rate	RF Band
Metro-Optix	CityStream 5000	OC-3/12/48	
Siemens Information and Communication Networks			
	XpressPass(2)	n x 1.544 Mb/s 44.736 Mb/s 155.52 Mb/s 622.08 Mb/s	
Terayon	MainSail 8000(3)	OC-3/12	
Turin Networks	Traverse(4)	OC-3/12/48/192	

Notes: (2)Includes the 140, 140HD, 142 and 144.
(3)The MainSail 8000 can provide T1 circuits and xDSL lines.
(4)Includes Traverse 600 and 1600.

Advanced Fibre Communications
Telliant 5000

Asynchronous Transfer Mode (ATM) access edge switch

Digital Subscriber Loop Access Multiplexer (DSLAM)

Data aggregator from multiple DSLAMs

Advanced Fibre Communications
Telliant 5000

Shelve Hardware Configuration

Two redundant switch fabric modules

One control module and up to19 port interface modules

or

Redundant control module and up to 18 port modules

Advanced Fibre Communications
Telliant 5000

Available modules:

Four port DS-3
Four port OC-3 - Single Mode Fiber - Intermediate Reach
Multimode Fiber

96 port ADSL - “double-wide” board
occupies two port module slots
provides 96 xDSL lines
G.dmt, G.Lite and T1.413

Ciena Corporation
MultiWave CoreStream

Dense Wave Division Multiplexing (DWDM) system

CoreStream contains optical terminals, amplifiers and add/drop multiplexers.

Modular architecture - Incremental and in-service capacity upgrades

Ciena Corporation
MultiWave CoreStream

Dense Wave Division Multiplexing (DWDM) system

Capacity to transport 1.6 terabits/second over a single fiber.

Mix 2.5 Gb/s and 10 Gb/s optical interfaces

Channel capacity: up to 96, 2.5 Gb/s channels
or up to 48, 10 Gb/s channels.

Supported Interfaces: OC-12, OC-48 & OC-192

Cisco Systems

ONS 15327

SONET System

Aggregates - voice, data and video services

Supports - TDM, Ethernet and ATM service

Provides - cross-connect functionality
- ability to drop DS1s from an OC-48 stream

Kestrel Solutions

TalonMX consolidates mixed traffic that is asynchronous, data, Gigabit Ethernet, or SONET, onto **a single wavelength** for transport throughout the network.

The TalonMX uses optical frequency division multiplexing (OFDM), which is supposed to be less susceptible to optical impairments.

Proprietary technology with no current standards.

OFDM uses electrical FDM to combine sub rate channels, then uses FDM signals to modulate the wavelength.

Kestrel Solutions TalonMX

low-speed shelf up to:

128 OC-3s
32 OC-12s
8 OC-48s
or
20 Gbps of non-SONET interfaces for Ethernet

Two high-speed shelves:

10 Gbps each


Web Page Under Construction - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Address http://www.kestrelsolutions.com/
Go
Back
Search
Favorites
Media
尚在建造
en développement
Under Construction
This page is under construction
Welcome
Willkommen!
ようこそ
Bienvenido
Welkom
Bem-vindo
Välkommen
Benvenuti
환영
ご覧のサイトは只今制作中です。
今しばらくお待ちください。
This Domain Name is Registered with
a VeriSign company
NetworkSolutions
Done
Internet
Start
Microsof...
2 Int...
Equipm...
Window...
8:24 AM

Lucent Technologies

Metropolis DMX access multiplexer supports and transports DSL, ATM and frame relay services over a fiber network.

Continues Lucent DDM-2000 platform.

Supports linear, point-to-multipoint and unidirectional path-switched ring (UPSR) configurations

Provides digital cross connect functionality.

Lucent Technologies Metropolis DMX

System/shelve capacity up to:

28 DS1s
12 DS3s
4 OC-3s
2 OC-12s
1 OC-48

or

24 10/100 Base-T Ethernet ports.

Up to four systems per bay

Lucent Technologies

WaveStar TDM 2.5G/10G

SONET transport systems

Support UPSR, BLSR, linear and ADM configurations.

Provide digital cross connect functionality.

Lucent Technologies WaveStar
Two System Configurations

Both systems operate over two fibers.

Support up to 384 STS-1s.

Lucent Technologies WaveStar
Two System Configurations

Stand-alone 2.5G Shelf

Capacity up to:

96 DS3
64 OC-3
16 OC-12
4 OC-48 or
16 Gigabit Ethernet
ports.

10G system

Consisting of:
10G shelf
with up to
four 2.5G shelves.

Adds 1 OC-192 port.

Marconi ASX-200BX, ASX-1000 and ASX-1200

ASX-200BX

ASX-1000

ASX-1200

are being used as both edge and small core ATM switches.

Marconi ASX-200BX, ASX-1000 and ASX-1200

Network modules are available for DS-1, electrical and optical SONET, Ethernet, voice circuit emulation, frame interworking and DS-1 Inverse Multiplexing over ATM (IMA).

Marconi ASX-200BX

32 ports or clients

bit rates:

T1 (1.544 Mb/s)

to

OC-12c (622 Mb/s)

Marconi ASX-1000

128 ports

bit rates:

T1

OC-12c. The ASX-1200 supports up to 128 ports, with bit rates from T1 to OC-48.

Marconi ASX-1200

128 ports

bit rates:

T1

to

OC-48

Transporting Video to Next Level system.

Ben Lomand Rural Telephone Coop., Inc.

Horry Telephone Cooperative, Inc.

Dalton Utilities is a large supplier of electric, gas and water with many critical, remotely located equipment locations to monitor. Dalton Utilities uses remotely located ASX-200BX switches to connect over 200 remote monitoring stations to Dalton's central control station.

Warwick Valley Telephone uses an ASX-210BX and eight ASX-1000s to transport data, video and voice.

West Carolina Telephone uses their two and half year old ASX-210BX to transport Digital Subscriber Line (DSL) generated data.

Yadkin Valley Telephone uses an ASX-1000 to transport voice traffic.

Metro-Optix CityStream 5000
Multi-Service Platform

SONET Add Drop Multiplexer (ADM)
digital cross-connect
Asynchronous Transfer Mode (ATM) Service Access Multiplexer (SAM)
edge switch

The basic CityStream is equipped with core switch fabric, line and tributary interfaces.

Metro-Optix CityStream 5000
Multi-Service Platform

Core switch fabric provides the ability to add/drop, continue or hairpin traffic between the line and tributary interfaces.

The optional ATM switch fabric provides the ability for the CityStream 5000 to be an ATM SAM and edge switch.

Metro-Optix CityStream 5000 Multi-Service Platform

Interface type	Circuit Pack	Data rate	Ports
Line	OC-48 Narrowband OC-48	STS-48 STS-48	Single, Optical Single, Optical
Line or Tributary	OC-3/12 Quad OC-3	STS-3 or STS-12 STS-3	Single, Optical Quad, Optical
Tributary	DS-3	DS-3	Working & Protection

Siemens XpressPass

142	144	140
		
2 slots	5 cards	11 cards

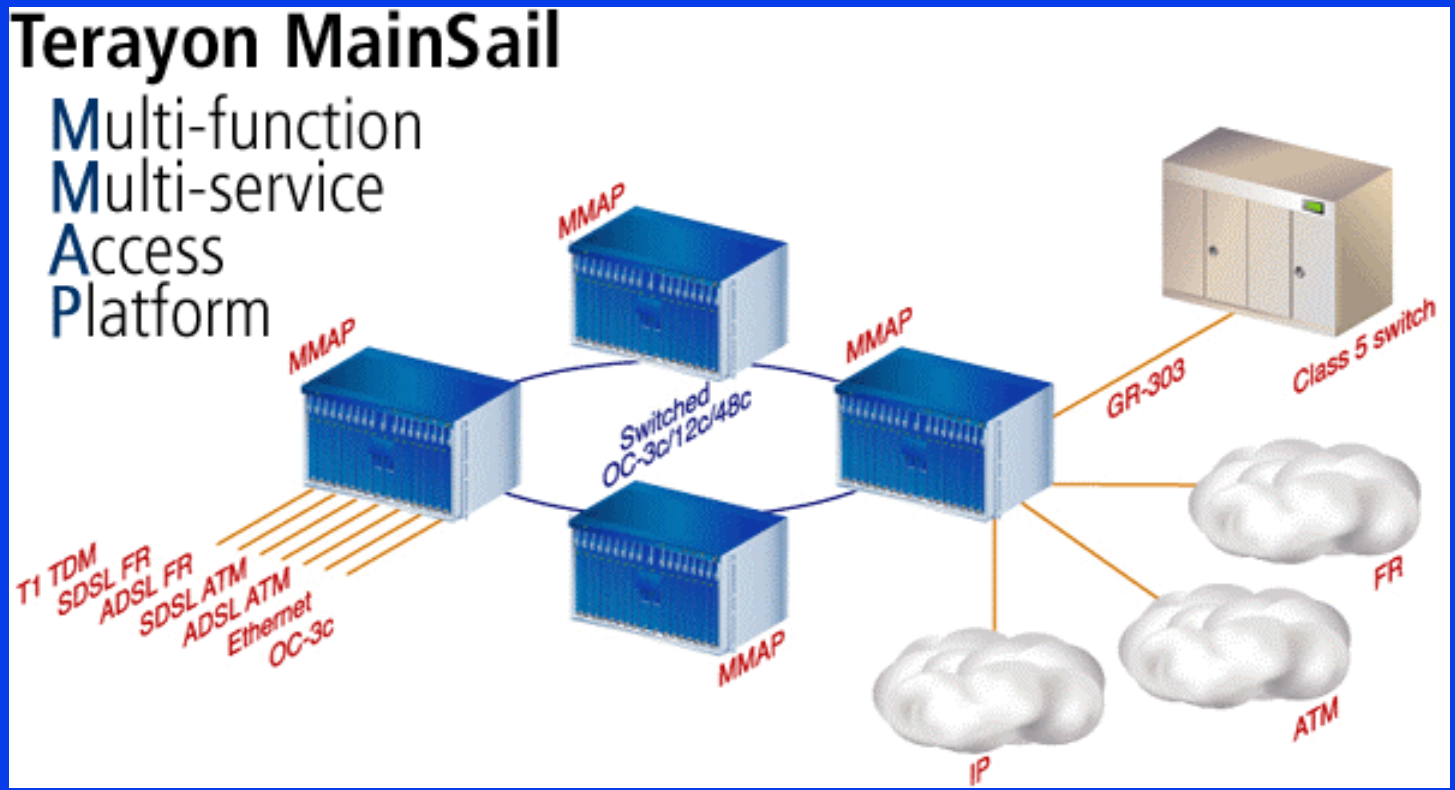
The following service interfaces are supported by the XpressPass:

Service type	Data rate	Card type	Ports
ATM	622.08 Mb/s	STM-4/OC-12c	Single
	155.52 Mb/s	STM-1/OC-3c	Single, Dual
	44.736 Mb/s	T3	Single, triple
	34.368 Mb/s	E3	Single, triple
	n x 2.048 Mb/s	E1(IMA)	Single, triple
	n x 1.544 Mb/s	T1(IMA)	
Internet Protocol	Physical interfaces are provided by the other service in the system.		
Frame Relay/ THDLC	2.048 Mb/s	E1	Quad, Octal
	1.544 Mb/s	T1	Quad, Octal
	n x 64 Mb/s	E1	Quad, Octal
Ethernet	100 Mb/s	100 Base-T, 100 Base-FX	Dual
	10 Mb/s	10 Base T	Dual

Siemens XpressPass

Service type	Data rate	Card type	Ports
ATM	622.08 Mb/s	STM-4/OC-12c	Single
ATM	155.52 Mb/s	STM-1/OC-3c	Single, Dual
ATM	44.736 Mb/s	T3	Single, triple
ATM	n x 1.544 Mb/s	STM-4/OC-12c	Single, triple
Internet Protocol	Physical interfaces are provided by the other services in the system.		
Frame Relay/ THDLC	1.544 Mb/s	T1	Quad, Octal
Ethernet	100 Mb/s	100 Base-T, 100 Base-FX	Dual
	10 Mb/s	10 Base T	Dual

Terayon Communications Systems
MainSail 8000



Terayon Communications Systems
MainSail 8000

Gr-303 gateway
M13 Multiplexer
ATM switch
SONET ATM add/drop Multiplexer

Each shelf can be equipped with:

Up to two uplink cards

and

Up to 16 "line cards.”

Terayon Communications Systems
MainSail 8000

Each uplink card contains either one fiber optic connector or a T3 connector.

Fiber optic uplink cards:

OC-3c
OC-12c
OC-48c
Multi-mode or single mode fiber

Terayon Communications Systems
MainSail 8000

Line cards are used to connect a MainSail 8000 to:

Customer Premise Equipment (cpe)
Integrated Access Devices (IAD)
Digital Subscriber Line Access Multiplexer (DSLAM)
Other MainSail 8000s
Networks.

Terayon Communications Systems
MainSail 8000

NuVox Communications:

- 120 MainSail 8000s
- All TDM
- Voice and Data traffic

Other Users:

- Aggregate multiple optical feeds from DSLAMs
- OC-3 trunks carrying ADSL traffic from Next Level Broadband Distribution Terminals (BDT)

Turin Networks

Traverse

Multiservice optical transport system

Implements a non-blocking switch design.

Deploys in a linear, ADM and ring (UPSR and BLSR) configurations.

Functions as a DWDM and SONET add/drop multiplexer and digital cross connect system.

Turin Networks Traverse
Two System Configurations

Traverse 600
Six-slot shelf

Capacity up to:
28 DS1s
12 DS3s
8 OC-3s
4 OC-12s
1 OC-48
or 8 to 24 Ethernet ports.

Traverse 1600
Sixteen-slot shelf

Capacity up to:
336 DS1s
144 DS3s
112 OC-3s
56 OC-12s
14 OC-48s
7 OC-192s or
112 to 288 Ethernet ports.

6.4 1-03 wn – Wireless Networks

Manufacturer	Product	Technology
AirNet	GSM BSS[1]	GSM
interWAVE	GSM Network[2]	GSM

Notes:

(1)Includes AdaptaCell BTS 3000, AirSite BS, BSC 3000, TRAU, and AirNet OMC R.

(2)Includes WAVEXchange MSC, WAVETransit, WAVEXpress BSC and BTS, and NIB.

Acceptance of AirNet's GSM BSS

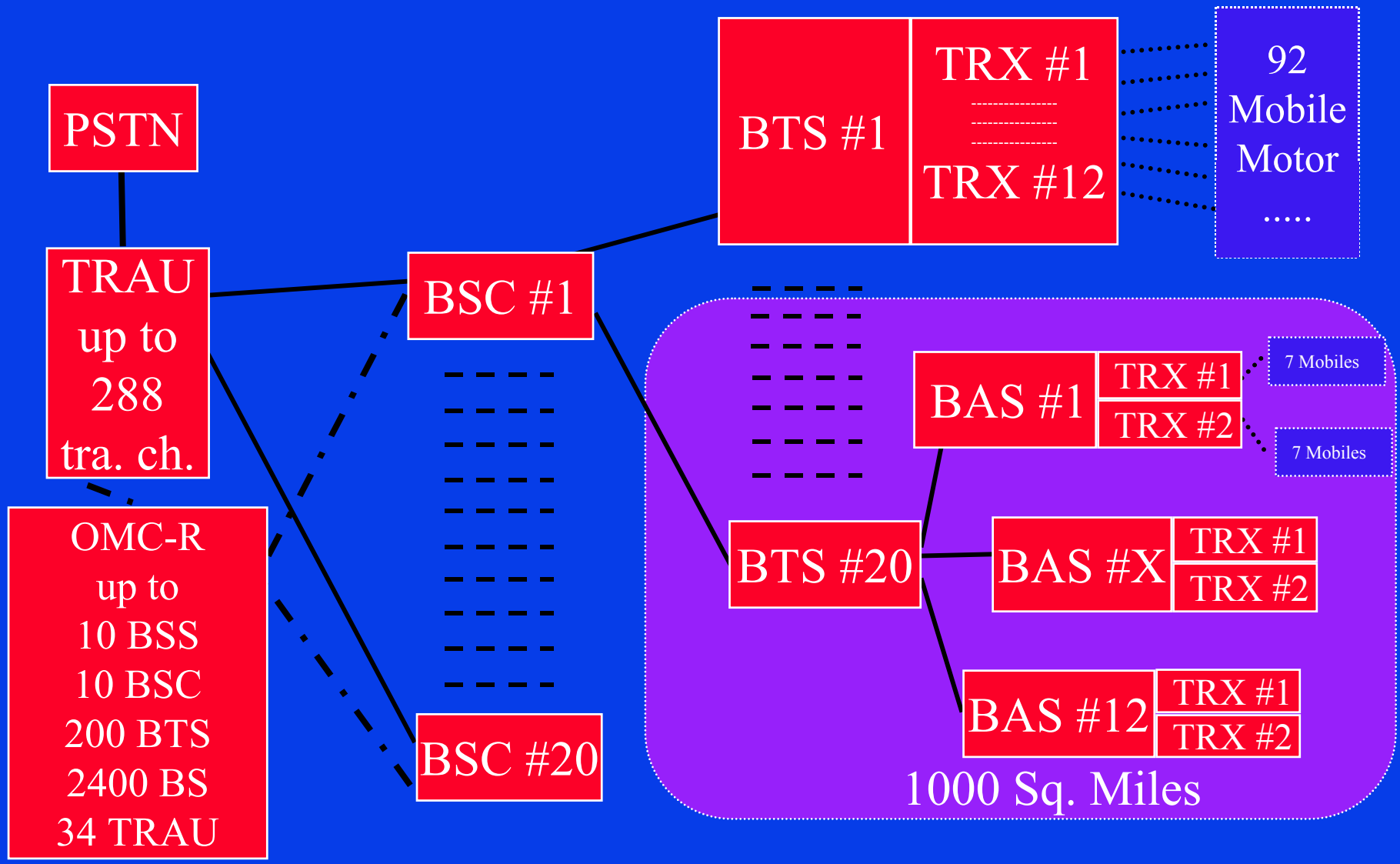
Components:

- AdaptaCell Base Transceiver Station (BTS)
- AirSite Base Station (BAS)
- Base Station Controller (BSC)
- Transcoder Rate Adapter Unit (TRAU)
- Operations and Maintenance Center-Radio (OMC-R)

Acceptance of AirNet's GSM BSS

Transcoder Rate Adapter Unit (TRAU) for all GSM frequency bands (900/1800/1900)

AirNet's GSM BSS



BSC supports up to 1840 channels

Interwave GSM

All GSM frequency bands, 900/1800/1900

4 T1 ports - support up to 1,000 subscribers

Interwave GSM

Components:

- Mobile Switching Center
- Base Station Controller
- Base Transceiver Station

interchangeable - any combination

field - software configuration

Interwave GSM

Components may be configured to:

operate separately

or

integrated unit

network-in-a-box (NIB)

complete GSM network

single cabinet the size of a PC tower

NON-DOMESTIC EQUIPMENT

Alloptic - GigaForce
Fiber-to-the-home (FTTH)
Fiber-to-the-business (FTTB)

Fujitsu:
Flash 600 ADX - SONET transport system
FLASHWAVE 4500 - multiservice optical transport system

Net to Net Technologies

IP DSLAM 12000 - 12 access modules
- up to 144 DSL or T1/E1 lines

IP DSLAM 4000 - 4 access modules
- up to 48 DSL or T1/E1 lines

ADSL MiniDSLAM - 12 ADSL ports
- full rate or G.lite ADSL
- at distances up to 18 kft